

# KNOWLEDGE ON GLOBAL STRATEGIES IN REVITALIZING CONSTRUCTION INDUSTRY

**S. Thomas Ng (1); Ryan Y.C. Fan (2); James M.W. Wong (3)**

- (1) Associate Professor, The University of Hong Kong, Hong Kong, tstng@hkucc.hku.hk  
(2) Ph.D. Candidate, The University of Hong Kong, Hong Kong, h0389349@hkusua.hku.hk  
(3) Postdoctoral Fellow, The University of Hong Kong, Hong Kong, jmw Wong@hkucc.hku.hk

## **Abstract**

*Construction is a growth engine for a country's economy development. At the same time, the construction industry is heavily influenced by general economy. A structural change of construction sector will induce a ripple effect to the economy if no immediate and effective measures are introduced to revitalize the industry. In the past, the construction industry of some advanced economies had already experienced recession periods, and various organizational strategies were introduced to stimulate the construction industry. Since not much research is attributed to identifying effective strategies to cope with a structural change in the construction industry, knowledge and lessons learnt from other advanced economies may help executives of construction establishments to map out viable and suitable policies and strategies at the corporate levels to sustain and revive the business. This paper aims to capture the knowledge in which the construction establishments adopted to react to a permanent change in construction demand and represent the knowledge in a structured manner, through a series of interviews conducted in selected advanced countries. Revitalization strategies include corporate restructure / reengineering, diversification in other sectors, and exploring the international market. Their effectiveness is discussed. The strategies are being put under the knowledge management initiatives of construction firms for policy and decision-makers' future reference. The knowledge learned from advanced countries should eventually lead to change and improvement of the construction organizations' business processes.*

**Keywords:** *Construction industry development, revitalization strategy, structural decline.*

## **1. INTRODUCTION**

Construction can serve as the engine of economic growth and development [1], as the industry contributes to a sizeable proportion of the economy and absorbs a large number of manpower at both grass root and professional levels. However, as the country's economy is moving towards maturity, the construction sector would decline irreversibly and a shrink in its contribution towards the general economy becomes inevitable [2]. According to Hillebrandt [3], the construction industry is also more prone to the influence of the general economy when compared to other industries. Therefore, the industry would have to face both the short-term volatile work volume and a more permanent structural change throughout its development.

A structural change of the construction sector will trigger a ripple effect to the general economy if no immediate and effective measures were introduced to revitalize the industry [4-6]. For instance, the recent suspension of the hotel and casino projects in Macau being caused by the global economic tsunami has added severe pressure to Hong Kong employment market and economy after the dismissal of thousands of construction workers [7]. To survive and grow in such a dynamic business environment, the industry should capitalize on the experiences of construction organizations of other constituencies which went through similar situations in the past. For instance in Australia, Japan, South Korea, Singapore and the United Kingdom (UK), their construction industry had already experienced the structural change whereby fiscal policy and organizational strategies were introduced to stimulate the construction industry.

Scarborough *et al.* [8] postulated to mobilize individual firm's knowledge assets to face the highly turbulent environments through Knowledge Management (KM). Kamara *et al.* [9] pointed out that KM strategies in the architectural, engineering and construction (AEC) sector

should reflect the context of the industry, with respect to the way it conducts business, and the types of knowledge that are critical for its success. Since limited research has been attributed to identifying effective strategies to cope with a structural change in the construction industry on the corporate level, knowledge and lessons learnt from other advanced economies may help executives of construction establishments to map out viable and suitable policies and strategies to sustain their business. Kamara *et al.* [9] also observed a strong reliance on the knowledge accumulated by individuals instead of any formal way to capture and reuse the knowledge in construction firms. Therefore, the aim of this paper is to put forward the strategies for various industry stakeholders to cope with a permanent change in construction demand based on the knowledge captured from advanced economies.

## **2. METHODOLOGY**

The study is founded on an extensive review of literature and a series of interviews with industry practitioners from the selected advanced economies. Six advanced economies that represent some of the largest economies and construction industries were selected, including Australia, Japan, Singapore, South Korea, the United States (US) and the UK. Their general economy and construction industry development process were reviewed through literature. Further literature review was then carried out to collect strategies adopted by construction firms during the structural change period in the industry. Having laid down some fundamental strategies, study tours were later organized to capture the information and views from industry experts (see Table 1 for their profiles) in the selected advanced economies. The interviewees are all senior members of their construction organizations. These construction organizations cover academic institutes, governments, trade associations, professional institutes and private consultant firms. The experiences and knowledge of the senior interviewees pertinent to various industry segments could represent broad and major perspectives of the local industry. During the interviews, the experts were asked for their experiences and opinions towards the strategies implemented as well as the effectiveness of such strategies during hard times in their construction industry. Under a KM framework, the collected corporate strategies from overseas' experiences were summarized and discussed for future utilization when construction firms encounter similar situations.

## **3. KNOWLEDGE MANAGEMENT DRIVERS**

Kamara *et al.* [9] conducted case studies of AEC and manufacturing firms in the UK to identify the initiatives for KM in these firms. Despite the fact that the case studies were focused on knowledge transfer across projects, the organizational drivers identified for AEC firms implementing KM are still applicable to our study in identifying the knowledge transfer process across organizations when facing similar recession periods. The four major drivers identified are: (i) the need to cope with organizational changes with respect to high staff turnovers and changing business practices; (ii) the need to minimize waste, prevent the duplication of effort and the repetition of similar mistakes from past projects, and for improved efficiency; (iii) the need to cope with growth and the diversification of a firm's business activities; and (iv) the effective management of the supply chain in project delivery. The last driver is considered less applicable for our study, as we are more focused on the managerial policies and strategies implemented. Hence the first three drivers are adopted to summarize experiences from other advanced countries.

#### 4. RECESSION STRATEGIES ADOPTED

##### (i) *Reengineering*

Following the outbreak of oil crisis in mid 1970s, Japanese contractors launched total quality control programs [10]. Some general contractors offered a one-stop service which covers everything including planning, design, construction and user support [11]. The Japanese firms also formed alliances to facilitate joint purchase of materials, joint use of heavy machinery and assets/technologies, and even the exchange of engineers [12]. Small and medium sized builders in the US formed direct partnerships with financial institutions for stronger financial support [13]. In the UK, property developers and contractors solved their cash flow problems by pre-selling developments and taking deposits on house-sales.

TABLE 1  
PROFILE OF INTERVIEWEES

Country / Position	Organization Type
Australia	
1. Chief Executive Officer	Government
2. Professor	Academic Institution
3. Professor	Academic Institution
4. Professor	Academic Institution
5. Professor	Academic Institution
Japan	
1. General Manager	Construction Company
2. Associate Professor	Academic Institution
3. Chief Official and Deputy Director	Government
4. General Manager	Consultancy Firm
5. Senior Executive Director	Trade Association
6. Architect	Consultancy Firm
7. General Manager	Public Organisation
8. Executive Director, Senior Researcher and Researcher	Research Institution
9. Managing Director	Consultancy Firm
South Korea	
1. Professor and Researcher	Academic & Research Institution
2. President	Trade Association
3. Senior Researcher	Research Institution
4. Professor and Associate Professor	Academic Institution
Singapore	
1. Deputy Chief Executive Officer and Director	Government
2. Executive Director	Consultancy Firm
3. Principal Engineer, Senior Executive Engineer and Deputy Director	Government
4. Managing Director	Consultancy Firm
5. Professor	Academic Institution
6. Professor	Academic Institution
7. Executive Director and Officer-in-Charge	Trade Association
8. Council Member	Professional Institute
United Kingdom	
1. Director	Material Manufacturer
2. Chief Executive and Director	Trade Association
3. Engineer	Consultancy Firm
4. Partner	Consultancy Firm
5. Division Head	Government
6. Professor	Academic Institution

At the same time, companies kept their dividends up or even increased them even when they had made considerable losses, as the dividends were an important means in maintaining

investors' confidence. Right issues for existing shareholders to subscribe to newly issued shares emerged as an alternative way to reduce gearing and to raise capital. Companies prepared more detailed financial budget spanning for one year to eighteen months. Contractors tendered for more number of smaller projects to “*limit the size of jobs undertaken to the level at which the failure of one project would not endanger the company*” [14]. Singaporean contractors introduced a Deferred Payment Scheme which allows property buyers to defer cash down payment and created a stronger incentive for the buyers to enter the property market [12]. Korean construction companies restructured themselves during the recession. Before the economic crisis, big construction companies had been playing the roles of both developer and constructor, but these companies abandoned the role of property developing and focused on providing contracting services after the financial crisis to better utilize their resources (Korean Interviewees).

### ***(ii) Cost reduction***

Singaporean contractors rented vacant lands as storage yards for their idling plant and equipments during mid 1980s. Some of them decided to hire out their plant and equipment, as a way to reduce the costs as well as to ease the cash flow. Other contractors faced the difficulty of not having enough projects in hand to pay for the monthly recurrent cost. Hence, they disposed all their equipments to pay the resulting liquidated and ascertained damages so as to end the leases before their expiry [15]. Large builders in the US diminished their land operations to minimize their working capital. As an alternative, the builders bought finished lots from local developers and builders [13,16]. In the UK, cost reduction was achieved by closing down their regional offices selectively. Alternatively, some contractors cut back on the scale of their head office while making regional offices responsible for more service functions. Others had a more stringent control over capital expenditure on new acquisitions [14].

### ***(iii) Downsizing***

Some Japanese construction companies chose to downsize their operation to survive through the time of recession period [10]. Korean construction companies also downsized and stopped hiring new employees in the recessions (Korean Interviewees). Similarly, there were pay cuts and manpower re-shuffling in Singapore during recession. Some companies windup or downsized (Singaporean Interviewees).

During the recession years, the UK companies laid off workers to cut down on costs. Under the shortage of labor, companies had to look for possibilities in technologies including information technology and construction techniques. For example, CAD was very popular during that time. Some companies had to structure out some redundancies and consolidate several offices into a single location in an attempt to reduce the cost (UK Interviewee).

Other strategies included a reduction in the number and size of company vehicles, reduction in training provided, and reduction of accounting staff, while improving access to computer access facilities for routine work was increased. They also kept their land stocks to a minimum. Some companies sold part of their assets or businesses in order to pay back their loans or interest on the loans [14]. In the US, many firms flattened their organization structure by phasing out middle managements for surviving a construction downturn [17].

Some construction enterprises, however, consolidated to keep their key people during recession. A lot of contracts carried out in Australia during the downturn were those which could not generate much profit but purely for survival. The organizations tried to keep their key staff and to maintain the business until the recovery comes (Australian Interviewees).

***(iv) Diversification in other sectors***

To survive during transformations and changes in the business environment of the construction industry, timely diversification and appropriate adjustments in business model are needed. The industry stakeholders in Australia diversified their services and tapped into facilities management, maintenance and refurbishment (Australian Interviewees). Japanese construction firms explored the business opportunities in the environmental technology, urban redevelopment and the building renewal market [11]. Some middle-sized Korean contractors transformed into engineering contractors or consultants. The big companies sold their land as a result of the poor financial status during recession; consequently their major business has changed to contracting services (Korean Interviewees).

***(v) Exploring the international market***

A sustainable future for the construction industry shall also be built upon the opportunities of exporting construction expertise [18]. The Japanese contractors expanded their business into overseas market after the slump in 1973. The construction orders they received from abroad in the 1983 fiscal year was almost 6 times as much when compared to 10 years ago [10]. Korean and Singaporean construction firms also attempted to venture overseas such as India, Vietnam, Middle East and more recently Russia during the recession in 1997 (Korean and Singaporean Interviewees). It was recognized that their home markets are highly competitive and hence expanding their business overseas is necessary for the survival and growth for the construction companies [19].

**5. DISCUSSIONS**

The study has examined corporate recession recovery strategies adopted by advanced countries under the KM initiative framework. Such relationship is mapped out in Figure 1.

The reengineering strategies are related to the KM drivers of coping with organizational changes in face of changing business practices and environment. Construction firms would have to redesign their business processes to cope with the change in market structure. Past experiences from advanced countries have suggested that companies could implement quality control programs while rethink on the type of services they are providing to the clients. When utilizing such experiences from advanced countries, decision-makers should always respond to their clients' wish for the required facilities and hence the larger construction market in general. According to Bon [2], in a maturing economy the underlying structure of the construction market would change such that the repair and maintenance sector would gradually take up a large part of the total work volume. Hence, a good understanding towards the market trend as well as prompt responses to such fluctuating trend based on past experiences could help construction firms to quickly revitalize after the recessions.

The cost reduction and downsizing strategies commonly adopted by construction firms when facing hard times could be seen as an initiative to minimize the cost and therefore to improve the overall efficiency of the company. However, such strategies could sometime affect the company and even the entire industry in much longer term than expected. The lost labor force may not be easily recaptured when the recession is over as they may have permanently migrated to other sectors. Hence, it was the experience of Australia that while streamlining the labor force, the companies should try to retain its key staff such that when the recession is over, the companies would still have high quality employees ready to capture the emerging business opportunities. A possible way of retaining and nurturing such quality employees would be to provide training and education opportunities for the key staff during the hard times (Australian Interviewees).

Diversifying a company's business coverage to other related local sectors as well as overseas markets fits into the third KM initiative being put forward by Kamara *et al.* [9]. As business cycles and other sectors/markets would probably be fluctuating differently from that of the local construction industry, some companies would try to establish business branches in other areas. Nevertheless companies should be prepared for various difficulties when they enter a new market. These challenges may include fierce competition in the new market, the technical capacity required, the skill level required and the capital involved. Hence some of the companies would rather choose construction-related sectors like facility management. Such exploration into alternative markets may also require government support, as reflected by various interviewees, in order to establish a credible reputation in a completely new market.

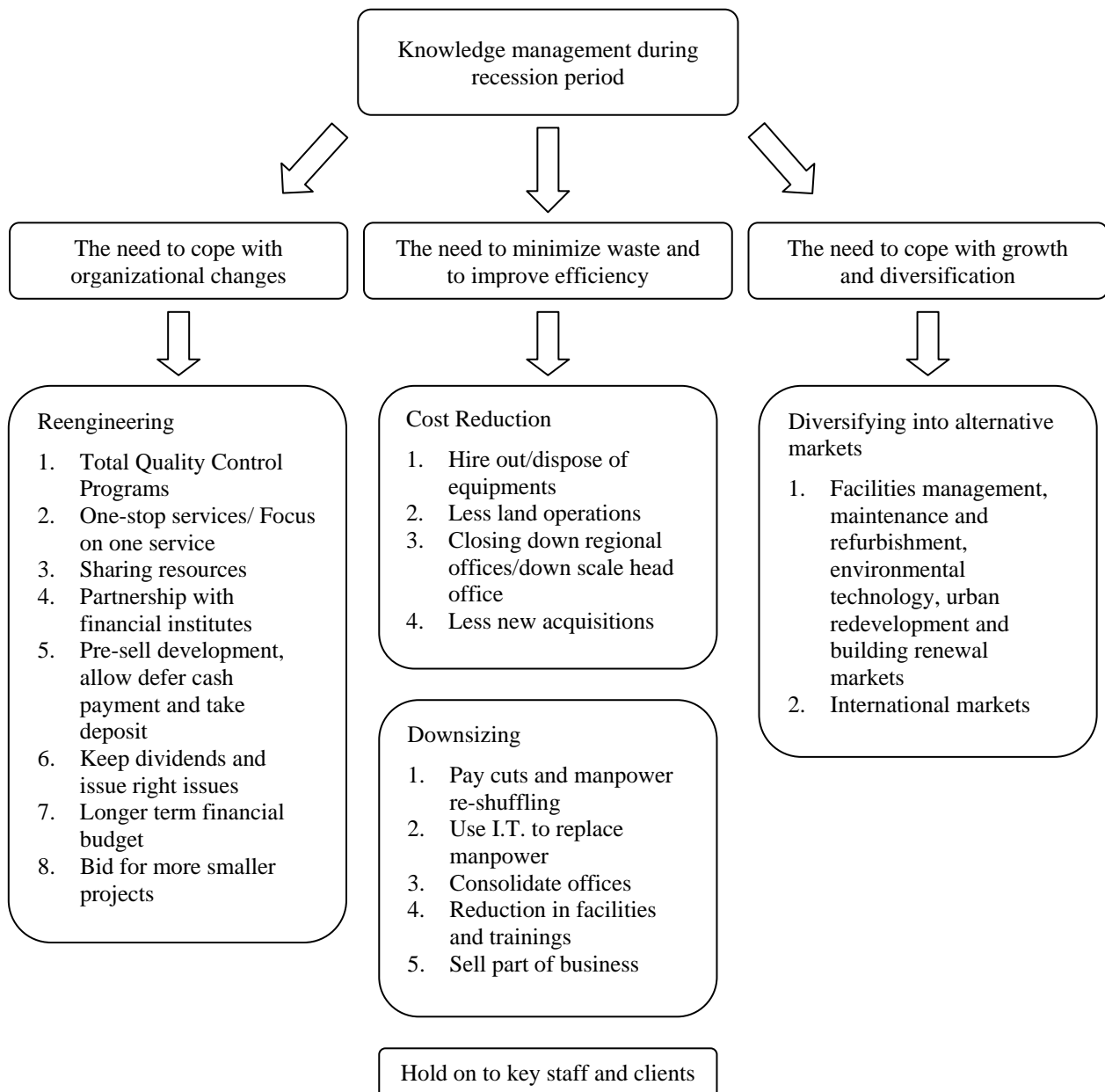


FIGURE 1  
CORPORATE LEVEL RECESSION RECOVERY STRATEGIES UNDER KM INITIATIVES OF  
CONSTRUCTION ORGANIZATIONS

The knowledge accumulated from advanced countries should eventually lead to change and improvement of the business processes of construction organizations. The utilization of the knowledge should address all levels in the construction organization such that the full potential of these experiences could be explored [20]. Hence, a good common understanding towards the strategies to be implemented in the construction firm by all levels could help to achieve better outcomes. Kamara *et al.* [9] suggested that Information Technology (IT) tools can be used to support information sharing and communication. Borghoff and Pareschi [21] also emphasized the usefulness of IT in sustaining organizational knowledge, as long as it is implemented in line with corporate culture and work practices while the IT has been expressly designed to suit KM purpose.

After the recent global financial tsunami, construction sectors of many economies have been deeply affected. According to Detemmerman [22], the European construction industry has suffered from a sharp decline in housing activity since 2008 under the impact of global financial crisis. To tackle the crisis, it is suggested that access to financing should be facilitated, similar to the US builders' strategy of forming direct partnership with financial institutions to ensure adequate financing sources as mentioned earlier. Detemmerman also suggested that new markets like climate change and energy investment, or even urban redevelopment and heritage conservation/revitalization could offer the construction industry new opportunities. The Building and Wood Workers' International (BWI) [23] postulated that by focusing on alternative development, energy saving and conservation measures, the global construction industry may be able to recover eventually. Various studied countries including Australia, Singapore, Korea and Japan adopted similar strategies in diversifying and exploring alternative markets during recession period. CIOB [24] believed that under the financial crisis, the UK construction industry could face dramatic re-structuring and downsizing. IT should be promoted, according to our study, to compensate for loss in manpower. Partnering and sharing of resources between construction firms could provide more stable and reliable financial and technical support under the current credit crunch [24].

## 6. CONCLUSIONS

The construction industry across the globe would often face volatile work volume as well as structural change in the market scale and underlying structure throughout the economy development process. As a result, an effective knowledge management framework would help the industry stakeholders prepare themselves for the future trends based on experiences collected from more advanced economies. To expand the currently limited database for revitalization strategies of construction industry in the economy development process, this study has identified and presented corporate level strategies adopted by six selected advanced countries which experienced such structural changes in the past.

The strategies collected from literature are structured and consolidated through further interviews with industry practitioners from the studied overseas countries. The interviewees have proposed and analyzed the strategies based on their experiences and insights into the construction industry. The consolidated strategies represent a collection of wisdom of industry stakeholders of various backgrounds from different geographical regions. The construction industries of the studied constituencies showed signs of recovery following the implementation of the collected strategies. Hence, these strategies should have a wide application on similar construction recession scenarios at different times and different locations. They are consistent with the KM initiatives expressed by construction firms such that these experiences should be useful to the firms as they adopt the KM framework into their business model. The recent impact of global financial crisis on the construction

industries across the globe has triggered the proposition and adoption of similar strategies with a hope to tackle the challenges ahead. Nevertheless, the short term and the hidden long term effect of these strategies to the construction industry development still requires more in depth research by more precise quantitative methods. How to effectively pass on such knowledge in particular within the construction industry also deserves further study.

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